

Stage Harbor Subwatershed Chatham, Cape Cod, Massachusetts

The Stage Harbor Subwatershed is located in Chatham. It has an area of 2,077 acres. The watershed consists of six embayments: Stage Harbor, Oyster Pond River, Oyster Pond, Mitchell River, Mill Pond, and Little Mill Pond. The subwatershed contains approximately 1,700 acres dominated by single family residences. Land development in this southeastern portion of Chatham creates a large nutrient load to the Stage Harbor System. Approximately 80% of the nitrogen load from single-family dwellings enters the Stage Harbor System along the shorelines of Oyster Pond, the northern portion of Oyster Pond River, Little Mill Pond, and Mill Pond.

According to the Water Quality Analyses of Coastal Embayments in Chatham, MA (2001), the smaller embayment systems are heavily impaired by watershed nitrogen inputs. Mill Pond and Little Mill Pond show poor habitat quality. These systems have lost their eelgrass beds and have fauna populations dominated by species indicative of eutrophic conditions. The larger subembayments to Stage Harbor are currently supporting moderate habitat quality, although it is apparently declining based upon trends in eelgrass distribution.

This subwatershed has several shellfish growing areas. Stage Harbor is an important resource area and is approved for shellfishing. The area has limited stormwater issues from a single pipe discharge and several points of surface runoff. All are small with limited contributing areas. Most have opportunities for infiltration before reaching the resource area except in the most severe storm events. Testing has not shown significant impact to the resource area. There is a Conditionally Approved area around the Stage Harbor Marine marina.

Oyster Pond River is also an important resource area and is approved for shellfishing. There is limited stormwater potential at several locations via surface runoff. The most important one is Barn Hill Town Landing. The town is designing a project to mitigate runoff from the adjacent road and town landing to Oyster Pond River. Other locations are small and have not been shown to have significant impact. There are two conditionally approved sub-areas due to marinas: Oyster River Boatyard, and Chatham Yacht Basin.

Oyster Pond is the shellfishing area most significantly impacted by stormwater. The entire Pond was classified as prohibited in 1983, but this was revised in 1986 to keep the eastern 12 acres prohibited and the remainder conditionally approved (the approved section came about in response to re-drawing the boundary between Oyster Pond and Oyster Pond River). There are two large stormwater culverts (3' diameter) that discharge runoff from area roads, including Route 28 and Main Street. The town conducted a Stormwater Management Study in 1992 and completed mitigation projects in 1997 and 2001. The town is currently working on projects to mitigate runoff from roads and parking areas immediately adjacent to the east end of the Pond and to improve runoff issues on Main Street. However, a significant portion of the runoff entering the pond originates from Route 28, which is the responsibility of the Massachusetts Highway Department. The town has had on-again off-again conversations over the past 10 years with MassHighway regarding their plans to address the runoff from Route 28, but thus far no concrete actions have been taken. The last important shellfishing resource area in this subwatershed is Mitchell River/Mill Pond/Little Mill Pond. It is approved for shellfishing. The most significant stormwater issue is the town landing at Mill Pond Road. This site contributes surface runoff from several adjacent roads via a paved ramp. There are several other locations with limited surface runoff and two locations of piped discharge to the area. None of these locations are large and water quality impacts have been limited.

The former Cape Cod Watershed Team requested in 2000 that the Stage Harbor complex be added to the Massachusetts 303(d) List.

Most of the Town of Chatham has municipal water. The older section of town, near Mill Pond, is publicly sewered. Sewers run up Main Street and Cross Street, and out of town to West Chatham. There are 450-500 sewer connections with five miles of gravity sewer and three miles of pressure sewer. The treatment plant can handle 440,000 gallons/day, though it is limited to 150,000 gallons/day under an administrative order. Currently the plant is processing about 120,000 gallons/day on an annual average. The effluent is being denitrified. The rest of the town is served by septic systems. Chatham is looking at alternatives for improving water quality through the development of its Comprehensive Wastewater Management Plan.

Stewards:

- Chatham Water Watchers
- Friends of Chatham Waterways

Studies conducted in the watershed:

- Comprehensive Harbor Management Plan, Chatham, Massachusetts. 1992. Horsely Witten Hegemann, Inc. Report to Chatham Harbor Planning Committee.
- The town conducted a Stormwater Management Study in 1992, which mapped the entire contributing area to Oyster Pond, the drainage system, etc. and proposed conceptual solutions.
- Report on Implementation: Stage Harbor Management Plan, Chatham, Massachusetts. January 1999. Prepared by the Stage Harbor Management Plan Implementation Committee. Study is ongoing and includes the mapping of eelgrass beds.
- Final Needs Assessment Report for Comprehensive Wastewater Management Planning Study. 1999. Stearns and Wheler. Report to the Town of Chatham.
- Water Quality Analyses of Coastal Embayments in Chatham, MA (Draft Report). May 2001. Conducted by Applied Coastal Research and Engineering, Inc., Applied Science Associates, Inc., and School for Marine Science and Technology.
- Cape Cod Atlas of Tidally Restricted Salt Marshes. 2001. Cape Cod Commission.
- Chatham Priority Open Space Project – 2001. The Compact of Cape Cod Conservation Trusts. Created a ranking list of undeveloped parcels that, if acquired as open space, would protect the most important natural resource areas in Chatham.
- The Stage Harbor system and Taylor Pond were selected as a priority area for the Estuaries Project – Southeastern Massachusetts Embayment Restoration, funded by the state and UMass Dartmouth. The goal of the project is to develop critical nutrient loading thresholds for each embayment to aid in water resources planning and which will support federal requirements for the development of Total Maximum Daily Loads for impaired surface waters. These areas will be evaluated in 2002.

Who is collecting water quality data and where:

- Chatham Water Watchers have six monitoring stations throughout the Stage Harbor Complex and one offshore control station. Sampling is conducted at both surface and bottom depths at most stations, for the following parameters: dissolved oxygen, temperature, secchi depth, ammonium, phosphate, nitrate, nitrite, total dissolved nitrogen, particulate organic nitrogen, particulate organic carbon, and chlorophyll a.

Management actions taken:

- Since approval of the Chatham Comprehensive Harbor Management Plan for Stage Harbor in 1994, significant progress has been made, including designation of the harbor as a No Discharge Area, establishment of a Coastal Resources Department, revision of the mooring regulations, installation of stormwater treatment facilities and the initiation of a water quality monitoring program for the harbor. (These actions are outlined in the Report on Implementation of the Stage Harbor Management Plan.)
- The town is currently in the design phase of a project to mitigate runoff to Oyster Pond River from adjacent road and town landing. Construction began in May 2003.
- To address runoff from area roads discharged to Oyster Pond by two large stormwater culverts, the town undertook the first phase of mitigation in 1997 using Coastal Pollutant Remediation funds. The second phase was completed in 2001. The town is currently in engineering design to mitigate runoff from roads and parking areas immediately adjacent to the east end of the Pond. In addition, the town is currently in design of improvements to Main St., including a new drainage system.
- The town is applying for Coastal Pollutant Remediation funding in June 2002 for mitigation at the town landing at Mill Pond Road. This site contributes surface runoff to Mill Pond from several adjacent roads via a paved ramp.

Subwatershed facts: (For data sources see Appendix)

- 21 E sites: 3, located at Oyster River Boat Yard, End of Barn Hill Lane; 1st National Bank of Boston, Old Harbor Rd.; and the Getty Service on Main Street
- Solid waste sites: none
- Zone IIs located in this watershed: 1
- Interim Wellhead Protection Areas (IWPAs): none
- Percent of the undeveloped land that is protected (according to 1985/1990 data): 42.9%
- Acres of existing wetlands: 258
- Certified vernal pools: none
- Named freshwater ponds: Oyster, Newty, Emery, White (*Chatham*)
- Named rivers or creeks: Oyster Pond River, Mitchell River
- Shellfish growing areas: Stage Harbor – approved. Conditionally approved area around Stage Harbor Marina. Oyster Pond River – approved. Conditionally approved subareas due to marinas: the Oyster River Boatyard and Chatham Yacht Basin. Eastern 12 acres of Oyster Pond – prohibited. Remainder of Oyster Pond is conditionally approved or approved. Mitchell River/Mill Pond/Little Mill Pond – approved.
- Beach closures: Periodic closing of the public bathing beach on Oyster Pond during the summer months due to water quality problems.
- This watershed contains Natural Heritage and Endangered Species Program (NHESP) Estimated Habitats of Rare Wildlife.

Priorities:

- Mitigate surface runoff at the town landing at Mill Pond Road, where runoff from several adjacent roads enters Mill Pond via a paved ramp.
- Address runoff entering Oyster Pond from Route 28.
- Acquire open space. Parcels considered a priority for acquisition for water supply protection and development: Chatham Tracts 1, 3, 5, 8, 9, and 10 were ranked as having medium or high water

supply development potential in the Cape Cod Commission's *Priority Land Acquisition Assessment Project* (April 1999). These tracts are located throughout the Town of Chatham.

- Develop critical nutrient loading thresholds for the Stage Harbor System to aid in water resources planning and the development of TMDLs.
- Implement those salt marsh restoration projects identified in the 2001 *Cape Cod Atlas of Tidally Restricted Salt Marshes* that have been evaluated and prioritized by the town. The site located in this subwatershed is the Stage Harbor Road restriction of Champlain Creek (Site CH-5).

Recreation:

Camping areas: none

Golf courses: none

Pathways and trails:

- South Beach, Morris Island Trail
- www.capecodcommission.org/pathways/trailguide.htm

Public access:

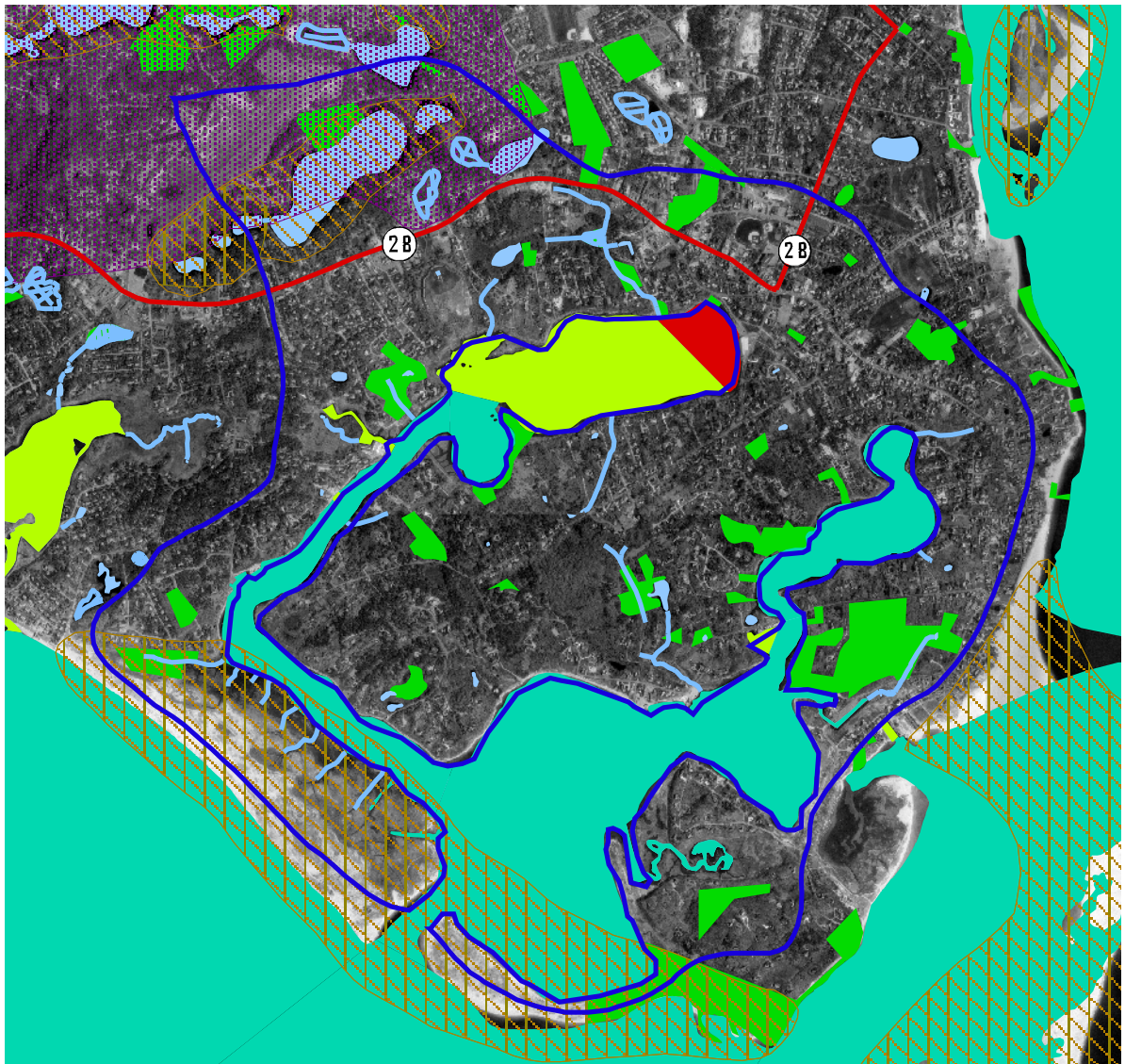
- www.state.ma.us/dfwele/pab/pabSEmap.htm

Public beaches and landings:

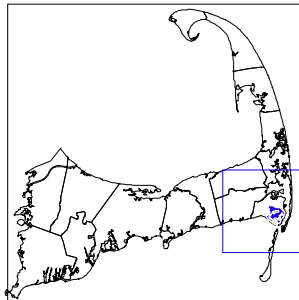
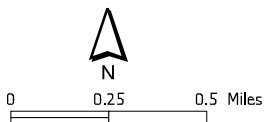
- Hardings Beach, Oyster Pond Beach
- Recreation Area on Newty Pond
- Landing on Oyster Pond

Stage Harbor

Chatham, MA



Watershed Resources



Natural Heritage and Endangered Species Program Data

- Certified Vernal Pool
- Priority Habitats of Rare Species
- Estimated Habitats of Rare Species

Groundwater Protection Areas

- Interim Wellhead Protection Area
- Zone II
- Solid Waste Facility

Watershed Boundary

Anadromous Fish Run

Shellfish Growing Areas

- APPROVED
- CONDITIONALLY APPROVED
- MANAGEMENT CLOSURE
- PROHIBITED
- RESTRICTED

Open Space

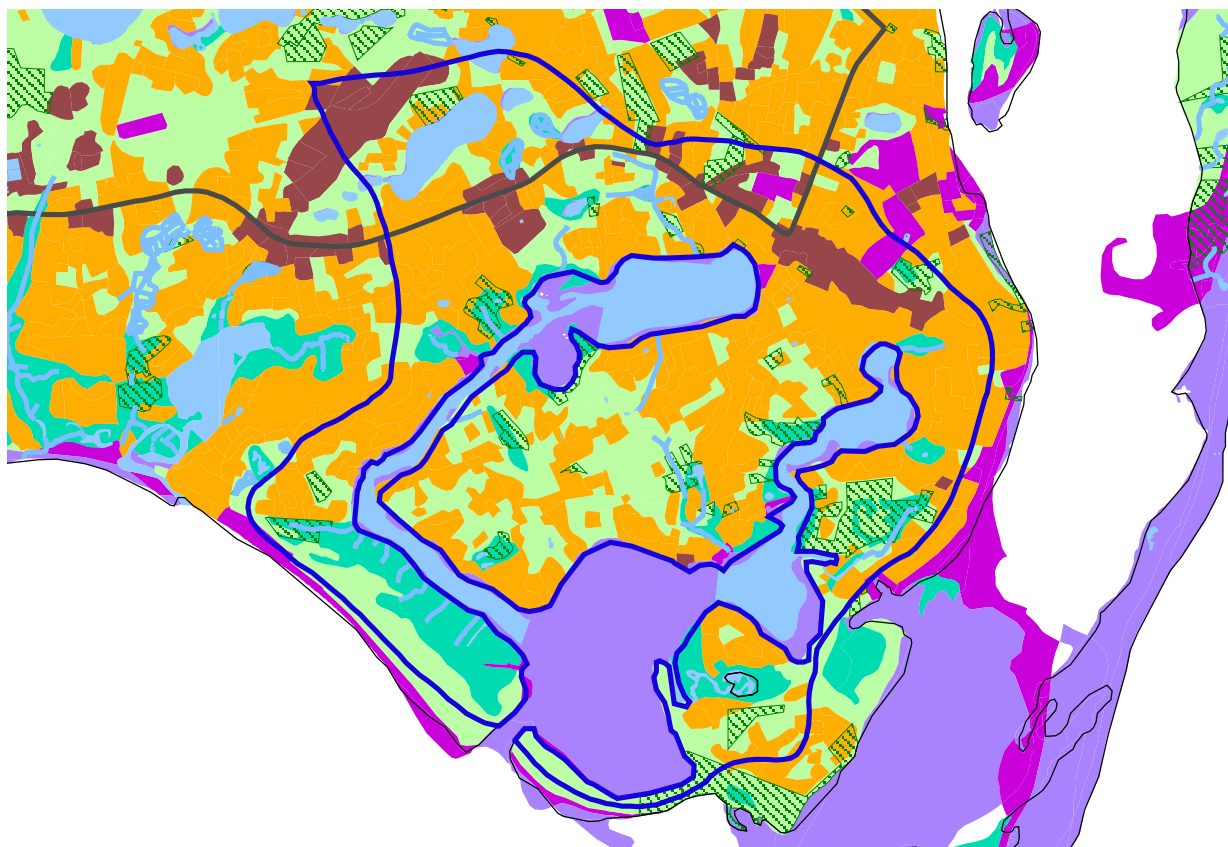
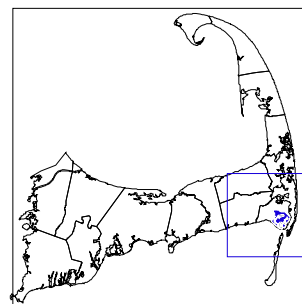
Streams

Ponds

Roads

Stage Harbor

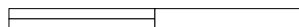
Chatham, MA













Land Use



0 0.5 1 Miles



Land Use

- | | | | |
|---|---------------------------|---|----------------------|
|  | non-residential developed |  | Streams |
|  | open land |  | Ponds |
|  | recreation |  | Watershed Boundary |
|  | residential |  | Protected Open Space |
|  | water | | |
|  | wetland | | |

